



# UNITED STATES PATENT AND TRADEMARK OFFICE

H.D

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/764,101	01/23/2004	James A. Harrington	879.1.018	7908

7590 10/10/2006

KENNETH WATOV, Esq.  
WATOV & KIPNES, PC,  
P.O. BOX 247  
PRINCETON, NJ 08550

EXAMINER
----------

DOAN, JENNIFER

ART UNIT	PAPER NUMBER
----------	--------------

2874

DATE MAILED: 10/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/764,101

Applicant(s)

HARRINGTON ET AL.

Examiner

Jennifer Doan

Art Unit

2874

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 23 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-8, 16-22, 31 and 32 is/are allowed.
- 6) ☒ Claim(s) 9, 11, 12, 15, 23, 25, 27 and 28 is/are rejected.
- 7) ☒ Claim(s) 10, 13, 14, 24, 26, 29 and 30 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 June 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>070306</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Information Disclosure Statement***

1. The prior art documents submitted by applicant in the Information Disclosure Statement filed on 07/03/06, have all been considered and made of record (note the attached copy of form PTO-1449).

### ***Drawings***

2. The drawings, filed on 06/21/06, are accepted.

### ***Specification***

3. Applicants' cooperation is requested in correcting any errors of which applicants may become aware in the specification.

### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

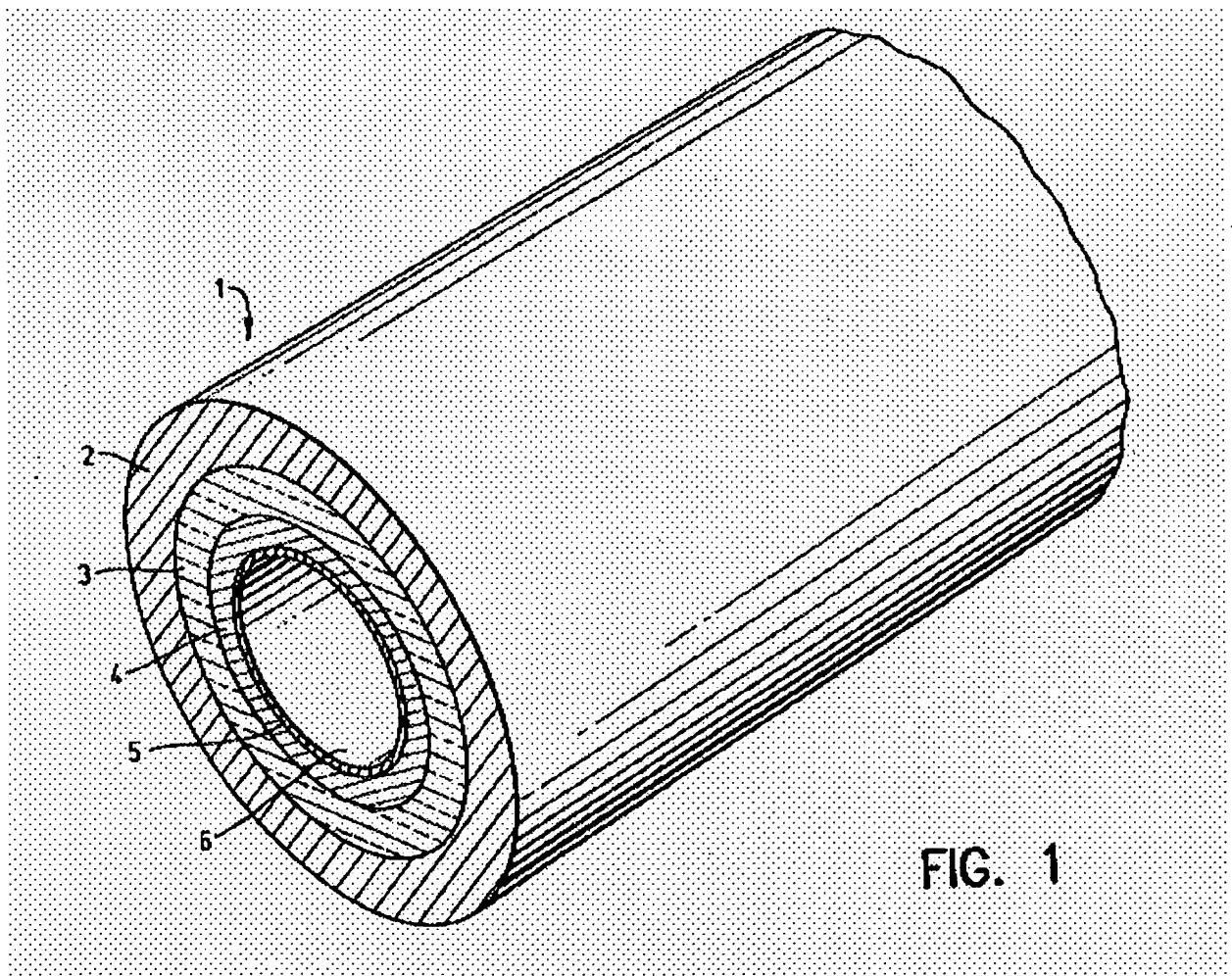
A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Art Unit: 2874

5. Claim 28 is rejected under 35 U.S.C. 102(b) as being anticipated by Harrington (U.S. Patent 5,815,627).

With respect to claim 28, Harrington (figure 1) discloses a method of fabricating a flexible, hollow waveguide using liquid phase deposition, comprising the steps of (a) depositing a metallic layer (4) on a smooth, inner bore surface (3) of a hollow, flexible, silica-glass tube (1); and (b) depositing at least one layer containing a sulfide (5) upon the metallic layer (4) of step (a).



***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 9, 11, 12, 15, 23, 25 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harrington (as cited above).

With respect to claims 9 and 23, Harrington (figure 1) discloses a flexible, hollow waveguide comprising a flexible, hollow tube (1) having a transparent annular body defining a bore with a smooth inner bore surface (column 4, lines 42-43); a metallic

layer (4) disposed upon the smooth inner bore surface (3) (column 6, lines 28-32); and a composite of dielectric materials (5) disposed upon the metallic layer (4).

Harrington does not disclose a composite of dielectric materials featuring disparate refractive indices with a ratio of approximately 2:1.

However, a composite of dielectric materials featuring disparate refractive indices with a ratio of approximately 2:1 is considered to be obvious. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the composite of dielectric materials of Harrington's device with the refractive indices ratio value as claimed for the purpose of obtaining the highly efficient transmission of optical signal, and it also has been held that discovering an optimum value of a result effective variable involves only routine skill in the art and it is noted that the applicant does not disclose criticality in the value claimed. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980) (see MPEP § 2144.05).

With respect to claim 11, Harrington discloses the waveguide, wherein the metallic layer is selected from a group of metals consisting of Ag, Au, Cu, Pt, Ni, Mb, Al, and combinations thereof (column 6, lines 31-36).

With respect to claims 12 and 25, Harrington (figure 1) discloses the waveguide further comprising an outer layer (2) surrounding the hollow flexible tube.

With respect to claims 15 and 27, Harrington discloses the waveguide, wherein the outer layer is selected from a group of materials consisting of plastic, and silicone (column 6, lines 14-17).

***Allowable Subject Matter***

9. Claims 10, 13, 14, 24, 26, 29 and 30 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The prior art of record fails to disclose or reasonably suggest the waveguide, wherein the composite of dielectric materials respectively comprise two sulfide layers; wherein the composite of dielectric materials respectively comprise cadmium and lead sulfide as recited in claims 10, 13, 14, 24, 26 and 29 and the method, wherein a cadmium sulfide layer is deposited upon the metallic layer as recited in claim 30.

10. Claims 1-8, 16-22 and 31-32 are allowed.

The prior art of record fails to disclose or reasonably suggest a flexible, hollow waveguide for transmitting radiation in visible and IR regions, comprising a composite of dielectric, sulfide-containing materials forming a photonic, bandgap tube transmitting in the visible and IR regions in combination with the other limitations of claims 1 and 16.

Claims 2-8 depend from claim 1.

Claims 17-22 depend from claim 16.

The prior art of record fails to disclose or reasonably suggest a method of fabricating a flexible, hollow waveguide using liquid phase deposition, comprising the steps of depositing at first layer of cadmium sulfide upon an inner, smooth bore surface

of a hollow silica-glass tube; and depositing at least a second layer of lead sulfide over the first layer of cadmium sulfide as recited in claim 31.

Claim 32 depends from claim 31.

### ***Conclusion***

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Miyagi et al. (U.S. 5,995,696) disclose a hollow waveguide.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer Doan whose telephone number is (571) 272-2346. The examiner can normally be reached on Monday to Thursday from 6:00am to 3:30pm, second Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on (571) 272-2344. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.




Art Unit: 2874

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JD

September 24, 2006

  
JENNIFER DOAN  
PRIMARY EXAMINER